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EXAMINER	
ZERVIGON, RUDY	

ART UNIT	PAPER NUMBER
1763	

DATE MAILED: 08/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/821,310	BERA ET AL.	
	Examiner	Art Unit	
	Rudy Zervigon	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 April 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *7/30/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 5, 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Claim 5 recites the limitation "supporting ring". There is insufficient antecedent basis for this limitation in the claim.

4. Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: Applicant claims "..wherein the at least one restrictor plate is one restrictor plate". It is uncertain/clear what applicant is claiming.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-6, 9-12, and 14-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Komino; Mitsuaki et al. (US 6,156,151 A). Komino teaches Apparatus (Figure 1; column 3, line

60 - column 4, line 54) for controlling the flow of a gas between a process region (101; Figure 1) and an exhaust port (112a, 2; Figure 1) in a semiconductor substrate processing chamber (CC; Figure 1), comprising; at least one restrictor plate (118a; Figures 2-4, column 6, lines 26-41) supported within the semiconductor processing chamber (CC; Figure 1) and adapted to at least partially circumscribe a substrate support pedestal (114; Figure 1, 4), the restrictor plate (118a; Figures 2-4, column 6, lines 26-41) adapted to control the flow of at least one gas flowing between the process region (101; Figure 1) and the exhaust port (112a, 2; Figure 1), as claimed by claim 1

Komino further teaches:

i. The apparatus (Figure 1; column 3, line 60 - column 4, line 54) of claim 1, further comprising: a base (LC; Figure 1) adapted to be coupled to a bottom of the processing chamber (CC; Figure 1); and a support ring (111b; Figure 1,2) coupled to the base (LC; Figure 1) in a vertically spaced apart orientation, wherein the at least one restrictor plate (118a; Figures 2-4, column 6, lines 26-41) is coupled to the support ring (111b; Figure 1,2), as claimed by claim 2

ii. The apparatus (Figure 1; column 3, line 60 - column 4, line 54) of claim 1, wherein the at least one restrictor plate (118a; Figures 2-4, column 6, lines 26-41) is configured to be laterally spaced apart from the substrate support pedestal (114; Figure 1, 4) and an interior wall of the processing chamber (CC; Figure 1), as claimed by claim 3

iii. The apparatus (Figure 1; column 3, line 60 - column 4, line 54) of claim 3. further comprising: a plurality of support legs (113, 116; Figure 2) coupled beetween the base (LC; Figure 1) and the support ring (111b; Figure 1,2), as claimed by claim 4

iv. The apparatus (Figure 1; column 3, line 60 - column 4, line 54) of claim 4, wherein the support legs (113, 116; Figure 2) retain the supporting ring (111b; Figure 1,2) in a non-parallel orientation with respect to a plane defined by a substrate support (114; Figure 1, 4) surface of the substrate support pedestal (114; Figure 1, 4), as claimed by claim 5

v. The apparatus (Figure 1; column 3, line 60 - column 4, line 54) of claim 1, wherein the at least one restrictor plate (118a; Figures 2-4, column 6, lines 26-41) having an annular shape which at least partially circumscribes the substrate support pedestal (114; Figure 1, 4), as claimed by claim 6

vi. The apparatus (Figure 1; column 3, line 60 - column 4, line 54) of claim 1, wherein the at least one restrictor plate (118a; Figures 2-4, column 6, lines 26-41) further comprises a plurality of restrictor plates (118a; Figures 2-4, column 6, lines 26-41), wherein each restrictor plate (118a; Figures 2-4, column 6, lines 26-41) abuts at least one other restrictor plate (118a; Figures 2-4, column 6, lines 26-41), as claimed by claim 9

vii. A semiconductor substrate processing system (Figure 1; column 3, line 60 - column 4, line 54) comprising: a processing chamber (CC; Figure 1); a substrate support pedestal (114; Figure 1, 4) disposed in the chamber (CC; Figure 1); a gas inlet (106; Figure 2) formed in the chamber (CC; Figure 1) above the pedestal (114; Figure 1, 4) for supplying a process gas into a process region (101; Figure 1) above the support pedestal (114; Figure 1, 4); an exhaust port (112a, 2; Figure 1) formed in a wall of the chamber (CC; Figure 1) and at least one restrictor plate (118a; Figures 2-4, column 6, lines 26-41) supported within the semiconductor processing chamber (CC; Figure 1) and at least partially circumscribing the substrate support pedestal (114; Figure 1, 4) , the restrictor

plate (118a; Figures 2-4, column 6, lines 26-41) adapted to control the flow of at least one gas flowing beetween the process region (101; Figure 1) and the exhaust port (112a, 2; Figure 1), as claimed by claim 10

viii. The system (Figure 1; column 3, line 60 - column 4, line 54) of claim 10, further comprising: a base (LC; Figure 1) adapted to be coupled to a bottom of the processing chamber (CC; Figure 1); and a support ring (111b; Figure 1,2) coupled to the base (LC; Figure 1) in a vertically spaced apart orientation wherein the at least one restrictor plate (118a; Figures 2-4, column 6, lines 26-41) is coupled to the support ring (111b; Figure 1,2), as claimed by claim 11

ix. The system (Figure 1; column 3, line 60 - column 4, line 54) of claim 11, further comprising: a plurality of support legs (113, 116; Figure 2) coupled between the base (LC; Figure 1) and the support ring (111b; Figure 1,2), as claimed by claim 12

x. The system (Figure 1; column 3, line 60 - column 4, line 54) of claim 10, wherein the at least one restrictor plate (118a; Figures 2-4, column 6, lines 26-41) is a plurality of restrictor plates (118a; Figures 2-4, column 6, lines 26-41) having an arcuate shape, as claimed by claim 14

xi. The system (Figure 1; column 3, line 60 - column 4, line 54) of claim 14, wherein the plurality of restrictor plates (118a; Figures 2-4, column 6, lines 26-41) substantially surround the substrate support pedestal (114; Figure 1, 4), as claimed by claim 15

xii. The system (Figure 1; column 3, line 60 - column 4, line 54) of claim 15, wherein at least a portion of an outer edge of the plurality of restrictor plates (118a; Figures 2-4, column 6, lines 26-41) reduces a gap defined between the outer edge and an inner wall of the

chamber (CC; Figure 1) proximate the exhaust port (112a, 2; Figure 1), as claimed by claim 16

xiii. The system (Figure 1; column 3, line 60 - column 4, line 54) of claim 10, wherein the at least one restrictor plate (118a; Figures 2-4, column 6, lines 26-41) is one restrictor plate (118a; Figures 2-4, column 6, lines 26-41), as claimed by claim 17

xiv. The system (Figure 1; column 3, line 60 - column 4, line 54) of claim 17, wherein the one restrictor plate (118a; Figures 2-4, column 6, lines 26-41) has an annular shape which substantially surrounds the substrate support pedestal (114; Figure 1, 4), as claimed by claim 18

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 7, 8, 13, and 19-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Komino; Mitsuaki et al. (US 6,156,151 A). Komino is discussed above. Komino does not teach:

i. The apparatus (Figure 1; column 3, line 60 - column 4, line 54) of claim 6, wherein the restrictor plate (118a; Figures 2-4, column 6, lines 26-41) has a width that is wider at one portion of the restrictor plate (118a; Figures 2-4, column 6, lines 26-41) than at another portion of the restrictor plate (118a; Figures 2-4, column 6, lines 26-41), as claimed by claim 7

ii. The apparatus (Figure 1; column 3, line 60 - column 4, line 54) of claim 7, wherein the portion having the wider width is adapted for positioning proximate the exhaust port (112a, 2; Figure 1), as claimed by claim 8

iii. The system (Figure 1; column 3, line 60 - column 4, line 54) of claim 12, wherein the support legs (113, 116; Figure 2) retain the substrate supporting ring (111b; Figure 1,2) non-parallel with respect to a plane defined by a support surface of the substrate support pedestal (114; Figure 1, 4), as claimed by claim 13

iv. The system (Figure 1; column 3, line 60 - column 4, line 54) of claim 18, wherein the one restrictor plate (118a; Figures 2-4, column 6, lines 26-41) has a width that is wider at one portion of the one restrictor plate (118a; Figures 2-4, column 6, lines 26-41) than at another portion of the one restrictor plate (118a; Figures 2-4, column 6, lines 26-41), as claimed by claim 19

v. The system (Figure 1; column 3, line 60 - column 4, line 54) of claim 19, wherein the portion having the wider width is positioned proximate the exhaust port (112a, 2; Figure 1), as claimed by claim 20

vi. The system (Figure 1; column 3, line 60 - column 4, line 54) of claim 20, wherein at least a portion of an outer edge of the one restrictor plate (118a; Figures 2-4, column 6, lines 26-41) reduces a gap defined between the outer edge and an inner wall of the chamber (CC; Figure 1) along one section proximate the exhaust port (112a, 2; Figure 1), as claimed by claim 21

vii. The system (Figure 1; column 3, line 60 - column 4, line 54) of claim 10, wherein the at least one restrictor plate (118a; Figures 2-4, column 6, lines 26-41) is one restrictor plate

(118a; Figures 2-4, column 6, lines 26-41) having an annular shape which completely surrounds the substrate support pedestal (114; Figure 1, 4) and a width that is wider at one portion of the one restrictor plate (118a; Figures 2-4, column 6, lines 26-41) than at another portion of the one restrictor plate (118a; Figures 2-4, column 6, lines 26-41), and wherein a portion of an outer edge of the one restrictor plate (118a; Figures 2-4, column 6, lines 26-41) contacts an inner wall of the chamber (CC; Figure 1) at least in a location proximate the exhaust port (112a, 2; Figure 1), as claimed by claim 22

It would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the dimensions of Komino's apparatus parts restrictor plate (118a; Figures 2-4, column 6, lines 26-41), and support legs (113, 116; Figure 2).

Motivation to optimize the dimensions of Komino's apparatus parts restrictor plate (118a; Figures 2-4, column 6, lines 26-41), and support legs (113, 116; Figure 2) is for influencing process as flow characteristics of Komino's apparatus as taught by Komino (column 1; lines 51-61). It is well established that changes in apparatus dimensions are within the level of ordinary skill in the art.(Gardner v. TEC Systems, Inc. , 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied , 469 U.S. 830, 225 USPQ 232 (1984); In re Rose , 220 F.2d 459, 105 USPQ 237 (CCPA 1955); In re Rinehart, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); See MPEP 2144.04)

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (571) 272.1442. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official fax phone number for the 1763 art unit is (703) 872-9306. Any

Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (571) 272-1700. If the examiner can not be reached please contact the examiner's supervisor, Parviz Hassanzadeh, at (571) 272-1435.